

Exhibit 1: The terrain of Cameron County displays the the vulnerability of the Lower Rio Grande Valley to inundation from coastal storm surge (shaded in red), localized sheet flooding (light blue) and river flooding (dark blue). Note that the Rio Grande and its older delta channels occupy the high ground in the region's topography.

**LiDAR Elevation Image**

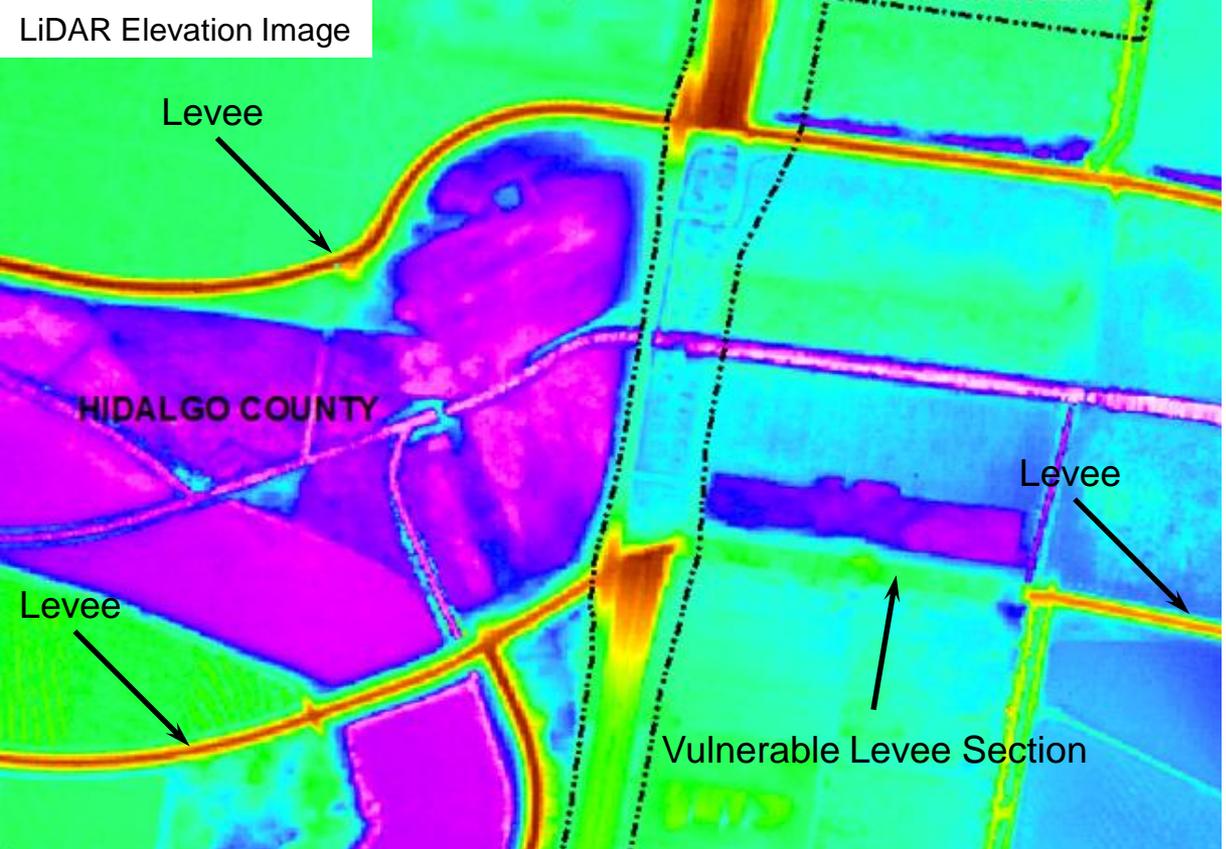
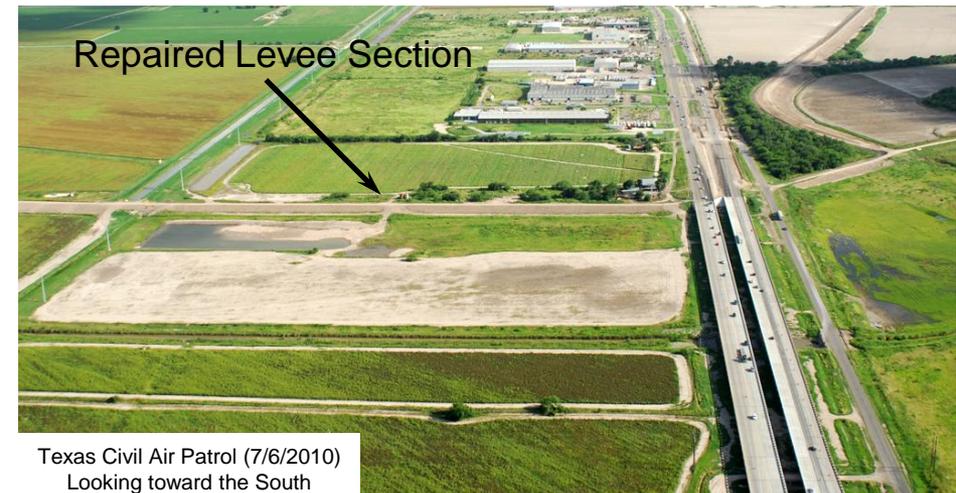


Exhibit 2: Recent repairs to the levees along the Main Floodway in Hidalgo County prevented serious flooding following the emergency release of floodwaters into the interior floodways of the Lower Rio Grande Flood Control Project in July 2010. Extremely accurate aerial laser terrain mapping surveys conducted in 2003-4 identified vulnerable levee sections (upper right LiDAR image). Aerial Photographs taken by the Texas Civil Air Patrol on July 6 and July 20 (bottom left and right) show the successfully repaired levee section located north of the City of Hidalgo before and after floodwaters entered the Main Floodway. Local bonds funded the acceleration of levee repairs in the region. Without such repairs, widespread damage would have occurred to areas near the interior floodway and primary levee along the Rio Grande.



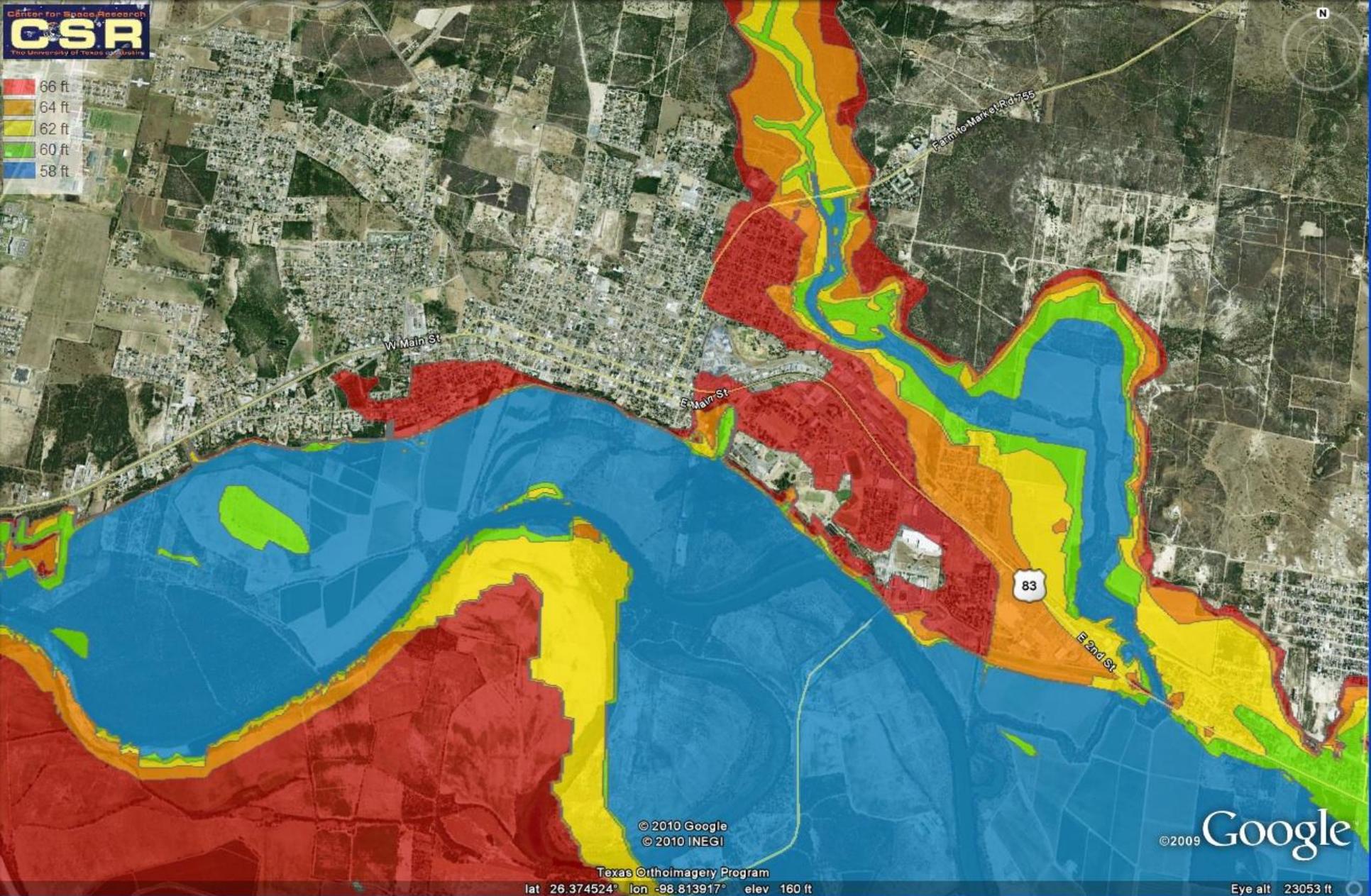


Exhibit 3: An inundation map of Rio Grande City correlates with river stage heights as calculated by the West Gulf River Forecast Center. Stage heights range from 58 feet to 66 feet. Major flooding in Rio Grande City results largely from backflow along Los Olmos Creek, which inundates the unprotected eastern portion of town. These model results can be distributed as a KMZ file for viewing in Google Earth.

# El Cuchillo Reservoir, Nuevo Leon, Mexico

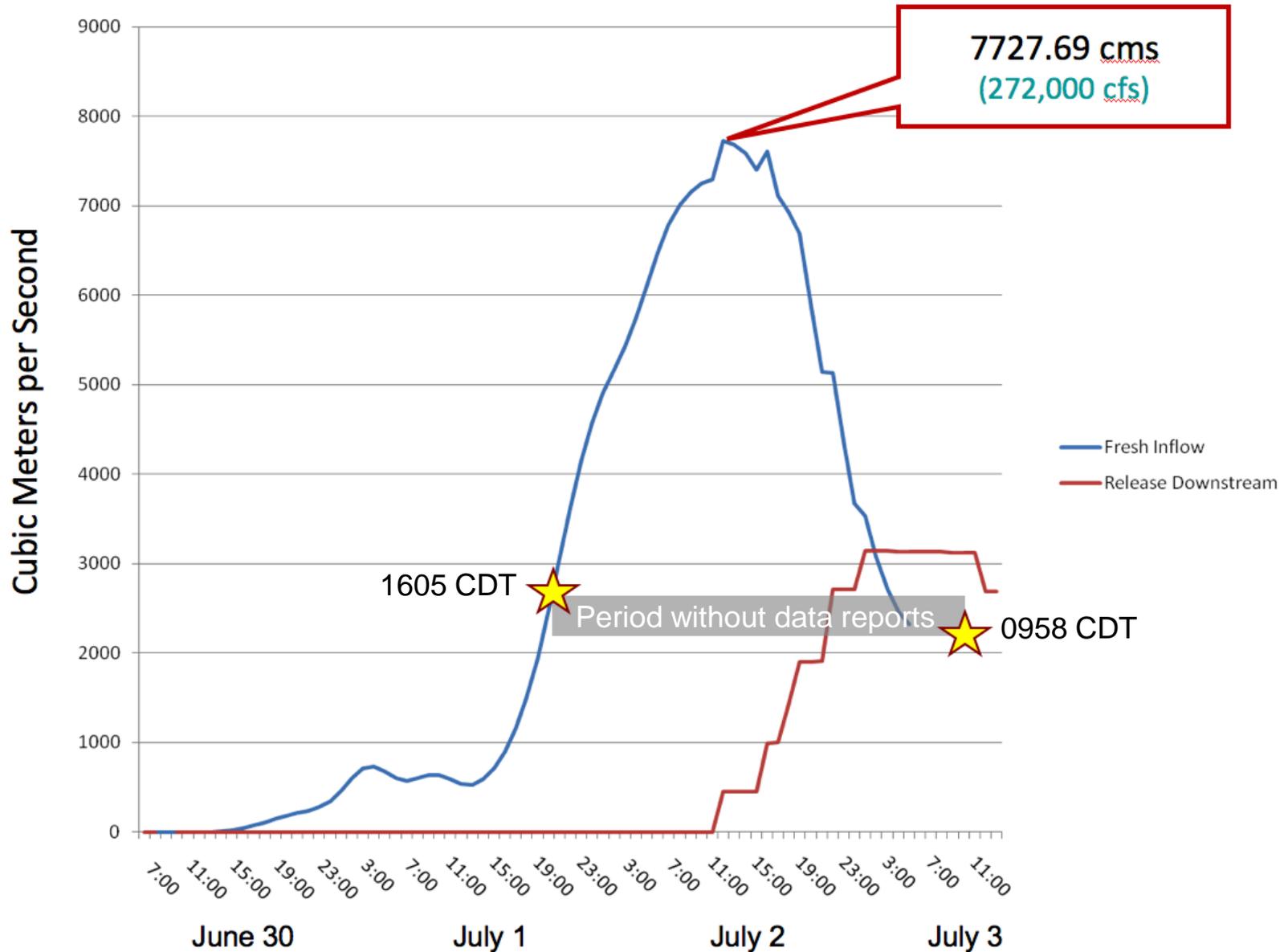
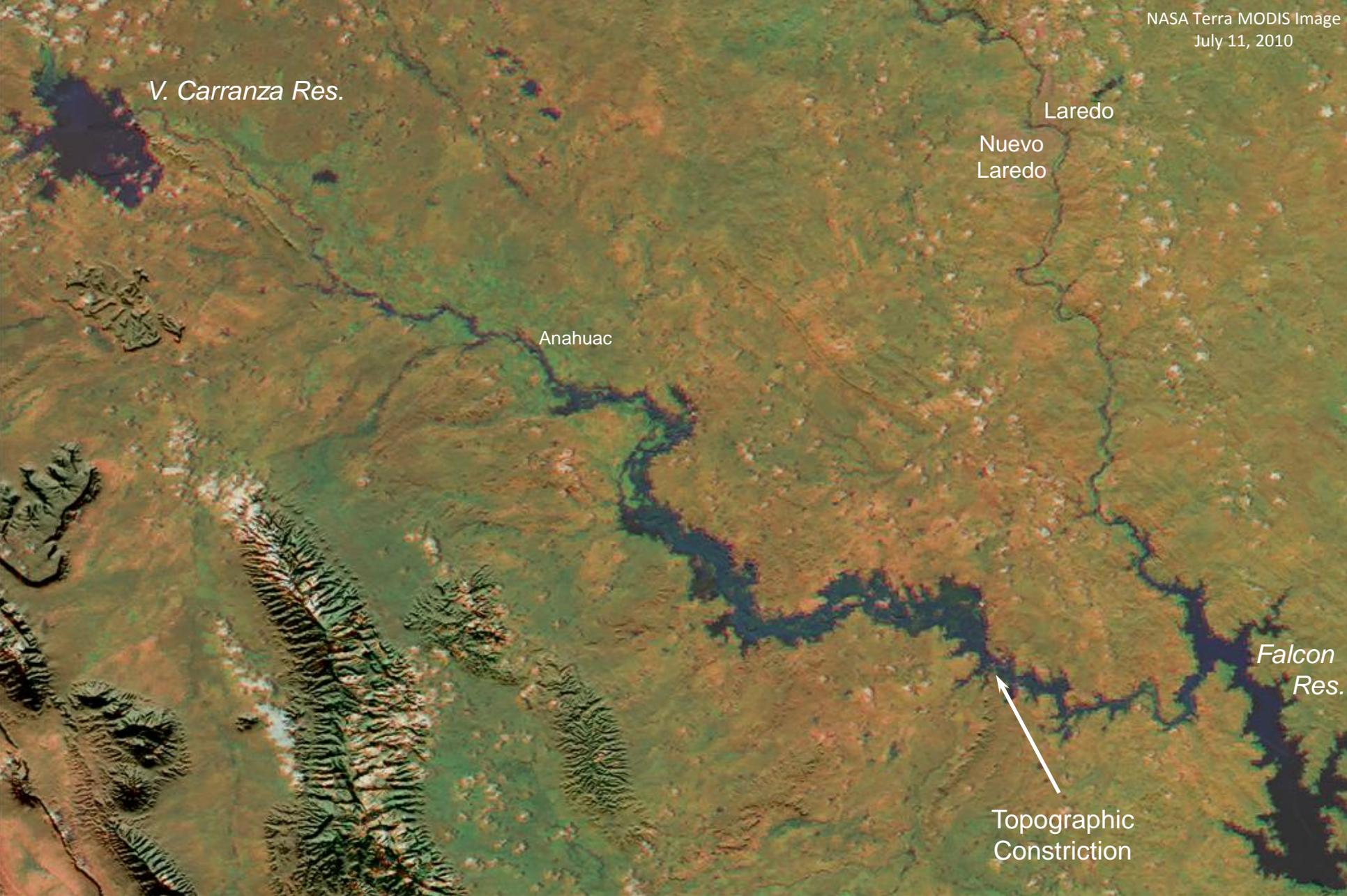


Exhibit 4: Official reports concerning the floodwaters entering and exiting the El Cuchillo Reservoir on the Rio San Juan in Nuevo Leon were not received for many hours during a critical phase after the landfall of Hurricane Alex. The delay introduced high levels of uncertainty into the flood modeling developed by the West Gulf River Forecast Center and other modeling efforts.



*V. Carranza Res.*

Laredo

Nuevo  
Laredo

Anahuac

*Falcon  
Res.*

Topographic  
Constriction

Exhibit 5: Floodwaters on the Rio Salado following Hurricane Alex were impounded behind a topographic constriction to create a temporary lake with a surface area comparable to the size of Falcon Reservoir. Formation of the lake delayed the arrival of the Rio Salado flood wave entering Falcon Reservoir and prevented more extensive flooding in the Lower Rio Grande Valley.

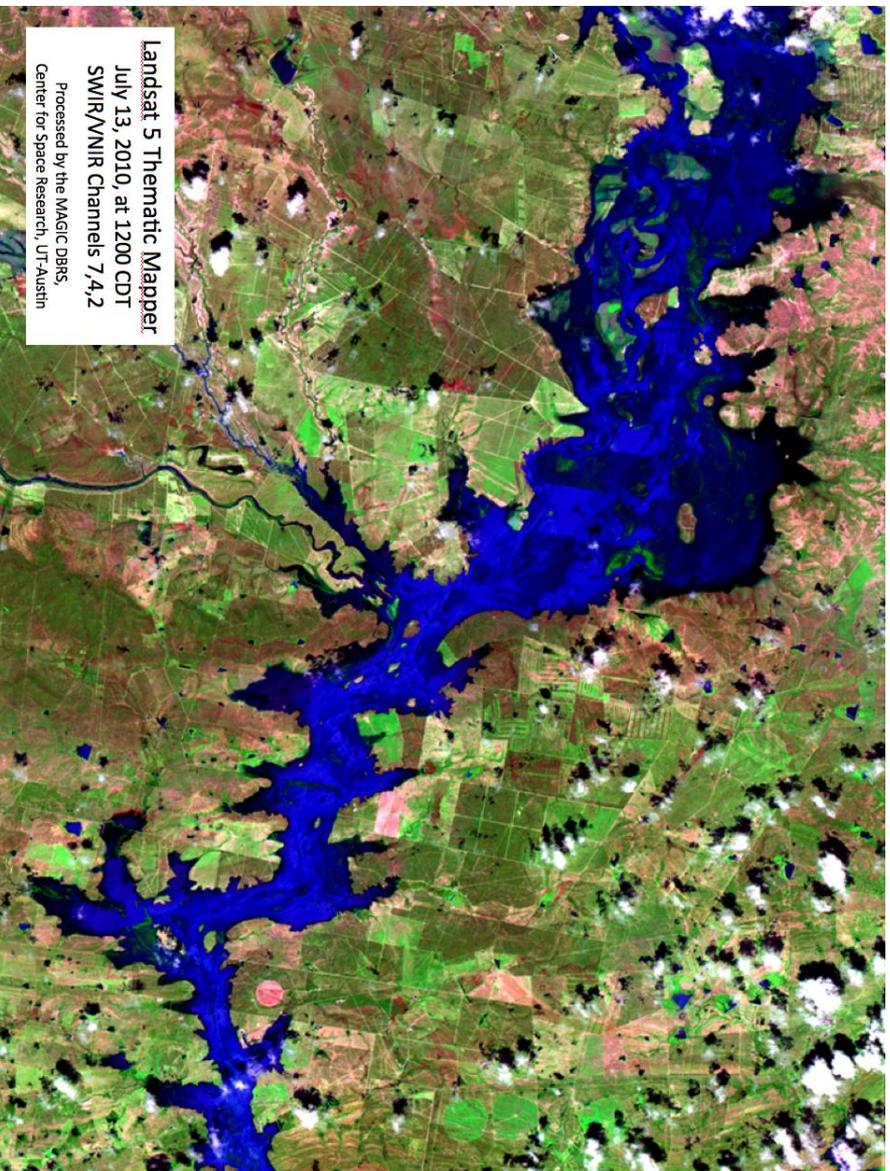
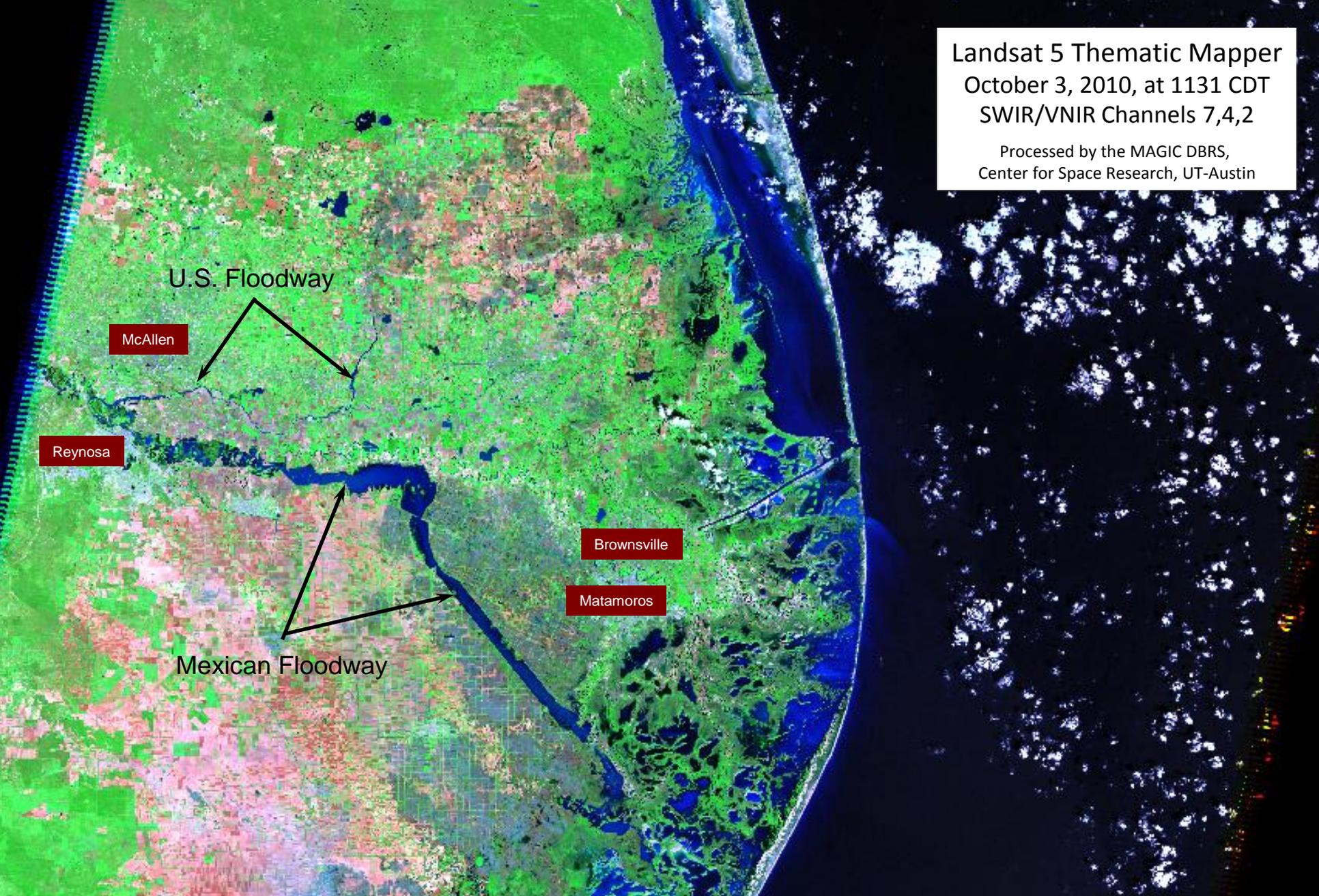


Exhibit 6: Two satellite images of the same area taken before Hurricane Alex on June 26 and after the storm on July 13 show the colossal flood along the lower reach of the Rio Salado upstream from Falcon Reservoir in Tamaulipas.

Landsat 5 Thematic Mapper  
October 3, 2010, at 1131 CDT  
SWIR/VNIR Channels 7,4,2

Processed by the MAGIC DBRS,  
Center for Space Research, UT-Austin



U.S. Floodway

McAllen

Reynosa

Brownsville

Matamoros

Mexican Floodway

Exhibit 7: More than three months after Hurricane Alex, floodwaters remain visible in the interior floodways of the Lower Rio Grande Flood Control Project in Tamaulipas and Texas.